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## **THE ERS TRADE LIBERALIZATION STUDY: METHODS AND PRELIMINARY RESULTS**

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### **Background**

The ERS trade liberalization study began to take shape in mid-1985 at the initiative of Bob Thompson, Assistant Secretary of Agriculture for Economics. The major objectives of the study are: (1) collect international agricultural policy data and conduct policy analysis for U.S. policymakers and negotiators as they prepare for a new round of multilateral agricultural trade negotiations (MTN), and (2) to provide information to the public and contribute to the public debate on agricultural trade liberalization. As it pursues these objectives, the Economic Research Service (ERS) is accumulating a capital stock of models and analytical expertise that can be called upon as the MTN process continues.

The trade liberalization study has followed two main courses since its inception: (1) measuring Government support to agriculture using the concepts of the producer subsidy equivalent (PSE) and the consumer subsidy equivalent (CSE), and (2) developing a static world policy simulation model (SWOPSIM) to analyze the effects of reducing or eliminating Government agricultural support. Policymakers at the U.S. trade representative's office and the Foreign Agricultural Service recently asked study participants for help in understanding how PSE's and CSE's could be used as part of the MTN bargaining framework.

### **Producer and Consumer Subsidy Equivalents**

The decision to use PSE's and CSE's as the measure of Government support to agriculture allowed ERS to build on work conducted at the Organization for Economic Cooperation and Development (OECD). The OECD trade mandate study estimated PSE's and CSE's of OECD countries for 1979-81. The ERS study includes OECD countries and a number of developing countries important in agricultural trade. The initial ERS study period was 1982-84.<sup>2</sup>

The PSE is defined as the level of subsidy that would be necessary to compensate producers in terms of revenues for removing all Government support under current programs. The CSE is defined as the payment that would be necessary to compensate consumers for removing all Government support under current programs. PSE's and CSE's differ from measures of producer and consumer surplus because they do not account for policy-induced changes in production and consumption. That is, PSE's and CSE's are measured at observed levels of production and consumption. This characteristic of PSE's and CSE's is shared with well-known measures of protection such as the nominal rate of protection (NRP) and the effective rate of protection (ERP). PSE's are typically reported as ratios between the value of Government support to producers and the value of production in order to compare support levels across countries or commodity markets. CSE's are reported as ratios between the value of Government support to consumers and the value of consumption at a designated point on the marketing chain. PSE's and CSE's can be positive (implying a subsidy) or negative (implying a tax).

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<sup>2</sup>Countries included in the ERS study are the United States, the European Community (EC), Canada, Japan, Australia, New Zealand, Taiwan, South Korea, India, Brazil, Australia, Mexico, South Africa, Nigeria, Thailand, Indonesia, Sudan, and Egypt. Commodity coverage varies among countries.

The ERS study incorporates a broad array of Government policy instruments in the PSE and CSE analysis. It includes the following categories of policies:

- o border measures and domestic price support programs;
- o direct income payments, including payments from Government to producers and payments from producers to the Government;
- o farm input, credit and marketing subsidies;
- o programs affecting agricultural production in the longrun, such as research and advisory services;
- o exchange rate controls, such as fixed, multiple, and pegged rates.

CSE's contain the components of PSE's that directly affect prices paid by consumers relative to world prices, border measures, many domestic price support programs, and exchange rate controls.

Current ERS estimates of PSE's and CSE's do not include policies administered by States, provinces, or the National Governments of the EC; export credit programs; and food stamp programs. There is no attempt, in calculating PSE's, to adjust the estimates to account for the effects of supply management or acreage reduction programs on farmer revenues.

Two main approaches are used to measure the subsidy equivalent of Government support: (1) allocating the net Government expenditures for a program among commodities affected by the program; and (2) calculating the effect of a program on the domestic price relative to some reference price and applying the amount of this price wedge to the total amount of production or consumption. Although there are standardized approaches to measuring the subsidy equivalents of similar policies in different countries, the development of each PSE is tailored to the policy profile and data sources of each country and commodity market within that country.

### **Preliminary Results**

The PSE analysis indicates that exporting countries tend to provide less assistance than importing countries to producers of a particular commodity; that food grain, sugar, and dairy producers tend to receive higher levels of assistance than other producers, particularly nonruminant meat producers; and that negative rates of producer assistance are sometimes found in developing countries. When aggregate PSE's--that is, the weighted averages of commodity-specific PSE's--are calculated for each OECD country included in the study, they indicate the following ranking for 1982-84: Japan (70 percent), EC (41 percent), Canada, United States, and New Zealand (20-25 percent each), and Australia (6 percent). In other words, the ratio of Government assistance to total producer income during the period studied, was over three times greater in Japan than in the United States, while assistance in the United States was three to four times greater than assistance in Australia.

The CSE analysis indicates that in developing country CSE's are typically negative except for less developed countries (LDC's); that consumer taxes are typically highest on sugar and dairy products; and that CSE's on food grains tend to be lower than the corresponding PSE's, due to Government policies designed to mitigate the negative effects of producer price supports on consumers. Consumers pay dearly for producer support in the EC, Japan, Taiwan, and South Korea. Most U.S., Australian, Canadian, and New Zealand CSE's are low, exceptions typically CSE's for dairy products and sugar.

Negative PSE's are found, in some cases, in LDC's. For example, Argentine's PSE's are negative due to export taxes. The study also identified negative rates of assistance for India, Brazil, and Nigeria. Exchange rate policies are often important in LDC's. For example, the nominal rate of protection for Mexican wheat was negative in 1982 and 1983, but an

undervalued currency in those years resulted in an implicit subsidy to Mexican producers and a net positive PSE. On the other hand, Brazil's tendency to tax its soybean producers through export taxes and quotas was reinforced through the policy of maintaining an overvalued cruzeiro.

The PSE and CSE analysis is also used to show in which countries border measures contribute to the overall level of producer support. The U.S. relies little on border measures, except to protect dairy and sugar producers. In the EC and Japan, border measures are the principal forms of support. Australia and Canada do not rely on border measures as major sources of support. The forms of domestic policies these countries use, however, differ from those the United States used. The study also indicates how differently countries distribute the cost of support to their agricultural producers among consumers and taxpayers.

### **Implications for Trade Liberalization**

ERS analysis of Government intervention in agriculture and agricultural trade liberalization is ongoing. The results this chapter presents, which are the measures of producer and consumer subsidy equivalents for 1982-84, represent the first phase of the trade liberalization project. These results are important because they condense the array of Government policies affecting agriculture into summary measures that can be compared across countries and commodities.

PSE's and CSE's provide a way for countries to monitor and measure each others' policy changes. They also offer a possible framework for multilateral exchange of concessions on agricultural policies.

Despite their potential usefulness, PSE's and CSE's alone do not fully reveal the effects of Government involvement in agriculture on production, consumption, trade flows, or prices. PSE's in most major trading countries are positive, while CSE's are negative. They do suggest that, in the absence of Government intervention, world agricultural production would be lower and world consumption higher, leading to generally higher world price levels. This hypothesis is supported by trade liberalization analysis at the World Bank and the OECD. The actual effects of Government policies on world and domestic markets, however, cannot be known without an understanding of the response of producers and consumers to policy changes and without incorporating the effects of supply-reducing policies, such as U.S. acreage reduction programs, into the analysis.